

THE NEOTROPICAL GENUS MELANOPLEURUS
(HEMIPTERA: LYGAEIDAE)

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ABSTRACT—The neotropical lygaeid genus *Melanopleurus* and its species are redescribed, a new species, **maculicorium**, from the Dominican Republic is described, the genital capsules and other anatomical details are illustrated, and a key to the species is presented. An apparently yet undescribed cuticular structure, a set of ventral hypopygeal punctures, (VHP) are described and illustrated for the first time. This structure is of specific importance in this genus.

Stal (1874) erected *Melanopleurus* as a subgenus of *Lygaeus* and Van Duzee (1916) fixed *L. bicolor* as its type-species. Uhler's (1876) use of *Melanopleurus* as a full genus was not followed by subsequent authors until Slater (1964), without explanation, again accorded it generic rank in his Catalogue of the Lygaeidae of the World. He presumably was following the same reasoning used in his 1964 paper on the African fauna where he states (p. 25) "In the case of several of the subgenera of the omnibus genus *Lygaeus* the subgenus has been raised to generic status. It seems desirable in this way to call attention to the great heterogeneity of *Lygaeus* (sensu lato) and the difficulty of characterizing the genus if broadly interpreted by other than negative characters". After studying the species of *Melanopleurus* and comparing them with a few allied taxa I think Dr. Slater acted correctly in this case. See, for example, figure 15, the claspers of *Ochrinnus collaris*, once also considered a subgenus of *Lygaeus*. For the complete bibliography see Slater's catalogue.

In this paper I redescribe the genus and the species, including a new species from the Dominican Republic (Hispaniola), illustrate their genital capsules and other anatomical details, and present a key to the species. I illustrate what apparently is a yet undescribed cuticular structure that I have temporarily called the "ventral hypopygeal punctures" (VHP) until its true function is determined (see figures 21 and 23). This character is of specific value and its details are visible at very low magnification after clearing with KOH.

The types of the new species are deposited in the United States National Museum of Natural History (USNM) at Washington, D. C., and paratypes are deposited as detailed in the description. In the measurements that follow 15 micrometer units are equivalent to 1.0 mm.

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Melanopleurus Stal

Redescription of the genus—Lygaeidae, Lygaeinae. Moderately small, from 5 to 9 mm long, relatively wide, not slender. Species with black head, pronotum, scutellum, membrane of forewings, osteolar peritreme, and appendages. Pronotum with or without red humeral angles. Clavus and corium red, with or without black areas. Membrane, bucculae, coxal cavities, and pleura margined with ivory. Pronotum shiny but not polished.

Head inserted to eyes; usually about 1.5 times wider than long; interocular space about 3 times as wide as width of eyes, slightly convex, smooth, with a small, slightly elevated calloused spot close to anterior margin of pronotum; facets of eye convex; ocelli set closer to eyes than to median line. Antennal tubercle barely visible from above, on lateral aspect triangular, broadly based; first antennal segment slightly surpassing apex of head, relative lengths of segments: first about or less than half as long as third, third slightly shorter than second, and second slightly shorter or as long as fourth. First segment of beak thickest and usually longest, slightly longer than others, others gradually thinner, last segment shortest. Head smooth ventrally; bucculae long, reaching almost to base of head, short or relatively high.

Pronotum wider than long, about 1.5 times wider than median length; anterior margin slightly concave, posterior margin slightly convex, lateral margins very slightly convex. Collar very short and inconspicuous, calli very slightly elevated, with or without an inconspicuous median longitudinal carina; with or without a few punctures behind collar and behind calli; disc moderately impressed behind calli. Scutellum wider than long, with smooth T-shaped carina in center.

Hemelytra macropterous; without punctures; claval commissure about as long as third antennal segment; corium with lateral margin curved from humeral angle to costal apex, margin not explanate, apical margin straight. Pleurae and pronotum laterally smooth, impunctate; osteolar peritreme on anteroventral angle of metapleura, small, inverted J-shaped, elevated above surface of pleura, opening apparently draining downward behind metacoxa; without evaporatorium.

Legs relatively slender; femora straight, unarmed, tapering toward apex, the hind femur heaviest; tibia straight, unarmed, of uniform thickness throughout; tarsi with first segment longest, longer than second and third combined, of uniform thickness, second shortest, last two thickening toward apex; claw strong, well developed, curved; pulvilli half as long as claws, strongly bent apically.

Pilosity scarce or very scarce above on head, pronotum, and scutellum, hairs small and somewhat scalelike, silvery; more abundant, fine and longer on antennae and abdominal sterna; most abundant and conspicuous on legs; genital capsule thickly silvery pilose. Pattern of trichobothria typical of the family.

Genital capsule opening upwards, retracted into last abdominal segment; caudal margin of opening with an elevated, tent-shaped, hairy area along median line; ventrally on the genital capsule with a set of pigmented round or oval flat

spots or punctures, discernible at low magnification that I have temporarily called "ventral hypopygeal punctures," as in figures 21, 23; claspers L-shaped, flattened dorsoventrally, with wedge-shaped ventral keel (as seen from above), inserted (A in figure 17) laterad under a mesad projection of the lateral margin of the opening of the capsule. To separate this genus from other allied genera see "Discussion".

Key to the species of *Melanopleurus*

1. Corium red with black spot or area 2
- Corium uniformly red 3
2. Clavus with black spot *tetraspilus* (Stal)
- Clavus without black spot *maculicorium* Maldonado-Capriles
3. Longer species, 8–9 mm 4
- Shorter species, 5–6 mm 5
4. Bucculae usually high and semicircular; opening of genital capsule as in fig. 26 *belfragei* (Stal)
- Bucculae high and produced angularly ventroposteriorly; opening as in fig. 24 *bicolor* (Herrich-Schaffer)
5. Humeral angle of pronotum orange-colored *b. bistriangularis* (Say)
- Only hind margin of humeral angle orange *b. marginellus* (Dallas)

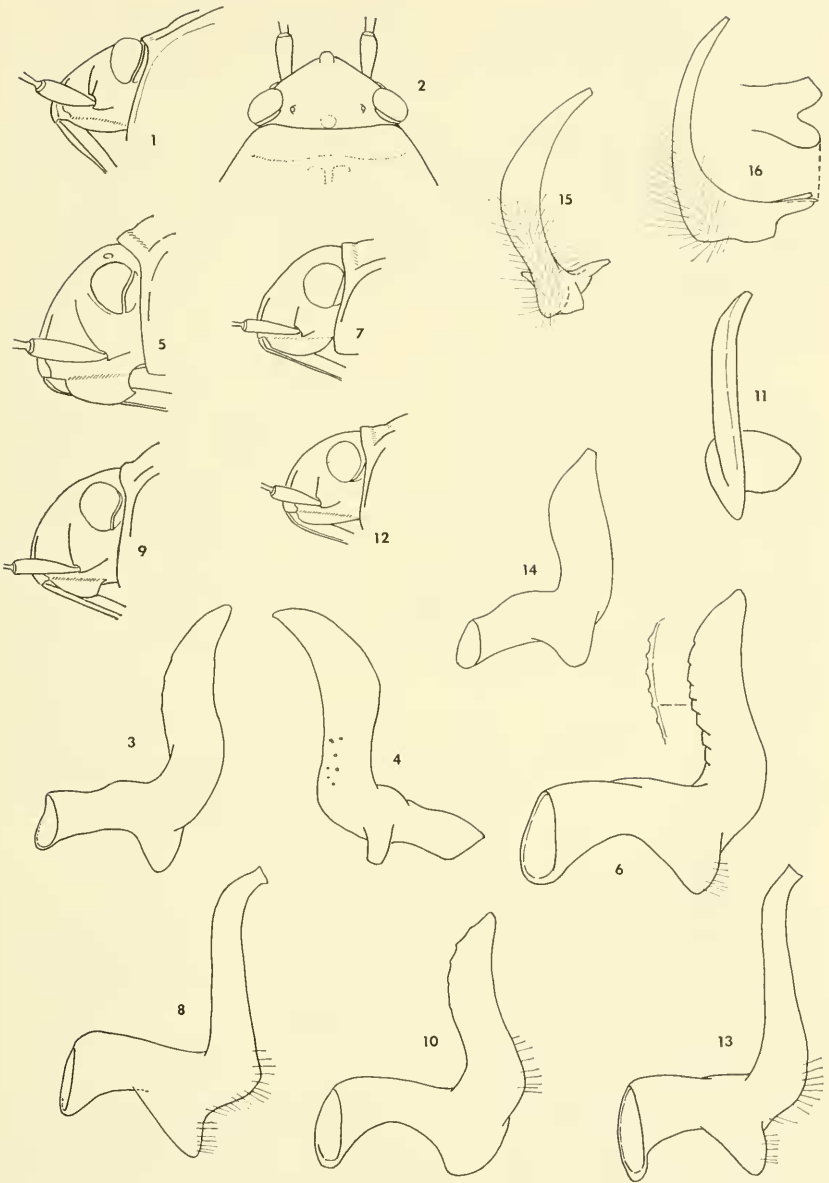
Melanopleurus belfragei (Stal) 1874

Female—head, pronotum, thorax ventrally, legs, scutellum, last abdominal segment, genital capsule, and membrane of forewing black. Clavus, corium, and other abdominal segments red. Costal margin, part of corio-membrane suture, margins of coxal cavities, bucculae, and margin of membrane of forewing narrowly yellowish or ivory. A small whitish spot medianly on posterior margin of vertex (spot of vertex). Antenna and legs covered with relatively abundant long fine semi-erect pilosity in addition to abundant appressed pilosity, hairs never longer than its corresponding segment of origin. Short, appressed, silvery pilosity on head, thorax, and forewing. Abdomen ventrally with abundant appressed yellowish pilosity. Head dorsally, pronotum, scutellum, and hemielytra with abundant very short silvery scales that appear as shiny silvery specks.

Shape of head as in fig. 9. Head across eyes over 1.5 times as wide as long (25:14); interocular space 15. Antennal segments: 7:16:14:18; first segment narrowed basally, thicker apically, as thick as fourth (3:3); second and third segments very slightly thickening toward apex, thinner than first apically (2:3). Beak just surpassing apex of mesocoxa, each segment successively thinner than the preceding, length of segments: 13:13:11:10. Pronotum nearly flat; calli appearing as thin transverse scars, very slightly elevated, with a few small punctures behind collar and discally behind calli; length medianly 25, length to anterior angles 26; width anteriorly 24, posteriorly 42. Scutellum nearly 1.5

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Fig. 1–4, *Melanopleurus maculicorium*. 1, head, lateral. 2, head and part of pronotum, dorsal. 3, left clasper, dorsal. 4, right clasper, dorsal. Fig. 5, 6, *M. bicolor*. 5, head lateral. 6, left clasper, dorsal. Fig. 7, 8, *M. b. marginellus*. 7, head, lateral. 8, left clasper, dorsal. Fig. 9–11, *M. belfragei*. 9, head, lateral.



10, left clasper, dorsal. 11, left clasper, lateral from inside. Fig. 12, 13, *M. b. bistriangularis*. 12, head, lateral. 13, left clasper, dorsal. Fig. 14, *M. tetraspilus*. left clasper, dorsal. Fig. 15, 16, *Ochrimmus collaris*. 15, left clasper, dorsal. 16, same, lateral from inside and dorsal detail of base.

times as wide as long (23:16). Length 8–9 mm. Specimen studied from Globe, Arizona.

Male—coloration as in female, pilosity as in female but with hairs slightly longer and in addition many subvertical, silvery, longer hairs on head and pronotum.

Head across eyes nearly 1.5 times as wide as long (22:14). Interocular space 13. Antenna with thickness and shape of segments as in female; lengths of segments: 8:16:13:15. Beak reaching but not surpassing apex of mesocoxa; length of segments: 11:11:9:7. Pronotum with punctures behind collar and calli more abundant and discernible than in female; length medianly 20, length to anterior angles 21; width posteriorly 34, anteriorly 20.

Genitalia as in fig. 10, 11, and 26; VHP as in fig. 27. Drawn from specimen from Nipomo, California. Recorded from Arizona, Mexico, and Texas.

Melanopleurus bicolor (Herrich-Schaffer) 1850

Male—head, antennae, beak, thorax, scutellum, membrane, last abdominal segment, and genital capsule black. Spot of vertex, collar, bucculae, margins of coxal cavities and bucculae, and tip of scutellum yellowish or ivory. Clavus, corium, and other abdominal segments red. Pilosity as in *belfragei*.

Shape of head as in fig. 5; head across eyes over 1.5 times as wide as long (25:14); interocular space 15. Antennal segments shaped as in *belfragei*; length of segments: 6:19:16:8. Beak reaching to posterior coxa; length of segments 13:13:12:8. Pronotum with pilosity, shape, and surface as in *belfragei*; length medianly 26, length to anterior angle 27; width anteriorly 23, posteriorly 40; punctures behind calli and collar few and obscure.

Genitalia as in fig. 6 and 24; VHP as in fig. 24; drawn from a specimen from Oaxaca, Mexico.

Female—coloration and pilosity as in male. Head across eyes 27, interocular space 17. Antennal segments 19:21:17:18. Beak reaching to posterior coxae; length of segments: 15:14:12:11. Pronotum with median length 23, to shoulders 24, posterior width 45. Few scattered punctures behind collar and calli.

Recorded from Arizona, Guatemala, Mexico, Texas, and Brasil.

Melanopleurus b. bistriangularis (Say) 1831

Male—head, antennae, beak, pronotum except at humeral angles, pleurae except at margins, scutellum, and membrane black. Last abdominal segment and genital capsule blackish. Spot of vertex, margin of bucculae, margin of coxal cavities, tip of scutellum, and margin of membrane yellowish or ivory. Humeral angle of pronotum, upper posterior angle of metapleura, clavus, corium, and abdominal segments except as noted above orange-red.

Head as in fig. 12; antennal segments 6:13:11:15; head across eyes slightly less than 1.5 times as wide as long (17:12), interocular space 10. Beak shaped as in *belfragei*; length of segments: 10:10:7:6. Pronotum shaped as in *belfragei*; length medianly 15, to anterior angles 16; width anteriorly 15, posteriorly 26. Scutellum wider than long (14:10). Length 5.5–6.0 mm.

Genital segments as in fig. 13 and 20; VHP as in fig. 23.

Description based on a specimen from Mexico. Specimens from Honduras and Panamá show varying extension of orange on humeral angles of pronotum.

Female—coloration as in male; orange on posterior angle of pronotum less

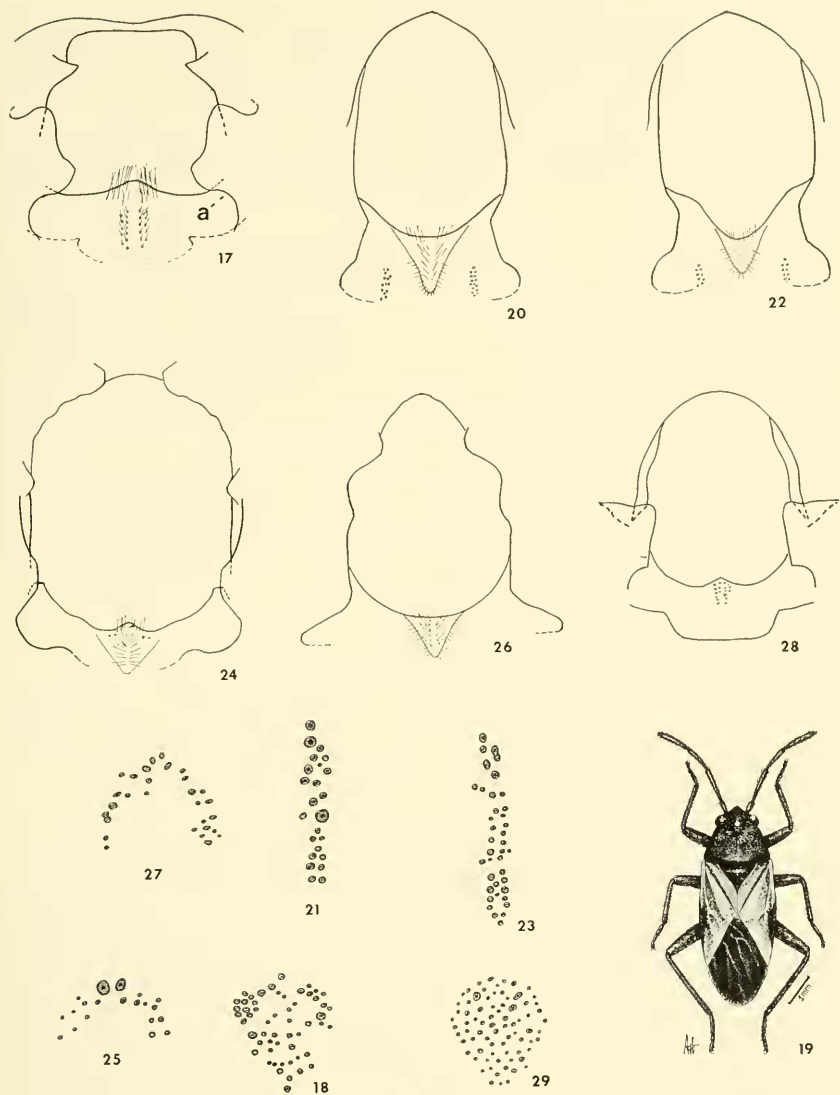


Fig. 17-19, *Melanopleurus maculicorium*. 17, opening of genital capsule, dorsal. 18, ventral hypopygeal punctures (VHP), ventral. 19, habitus. Fig. 20, 21, *M. b. bistrigularis*. 20, opening of genital capsule. 21, VHP. Fig. 22, 23, *M. b. marginellus*. 22, opening of genital capsule, dorsal. 23, VHP. Fig. 24, 25, *M. bicolor*. 24, opening of genital capsule, dorsal. 25, VHP. Fig. 26, 27, *M. belfragei*. 26, opening of genital capsule. 27, VHP. Fig. 28, 29, *M. tetraspilus*. 28, opening of genital capsule. 29, VHP.

extensive. Head across eyes about 1.5 times as wide as long (17:11); interocular space 9. Antennal segments shaped as in *belfragei*; length of segments: 4:11:9:11. Pronotum shaped as in *belfragei*; length medianly 14, to anterior angle 15; width anteriorly 14, posteriorly 25. Beak 9:9:8:6. Scutellum slightly over 1.5 times as wide as long (14:9). Specimen examined from Mexico.

Recorded from Quebec, Arizona, South Dakota, California, Colorado, Texas, Utah, New Mexico, Mexico, Costa Rica, Panamá, Colombia, Venezuela, and Guatemala.

Melanopleurus bistriangularis marginellus (Dallas) 1852

Male—head, antenna, beak, pronotum except on humeral angle, legs, scutellum, membrane, last abdominal segment, and hypopygium black. Border of membrane, spot on vertex, bucculae, and margins of coxal cavities ivory. Clavus, corium, hind margin of posterior angle of pronotum, upper posterior angle of metapleura, and other abdominal segments red or orange-red. Pilosity as in *belfragei*.

Head as in fig. 7; across eyes over 1.5 times wider than long (19:11); interocular space 11.5. Shape and pilosity of antennal segments as in *belfragei*; length of segments: 5:12:10:11. Beak reaching to apex of mesocoxa; length of segments: 9:10:7:6. Pronotum shaped and pilose as in *belfragei*; length medianly 18, to anterior angle 19; width anteriorly 17, posteriorly 28.5. Length 5–6 mm.

Genitalia as in fig. 8 and 22; VHP as in fig. 23. Specimen studied from Huachuca Mts., Arizona.

Female—coloration as in male. Head across eyes over 1.5 times as wide as long (20:11); interocular space 12. Antenna shaped as in male; length of segments: 10:11:9:8. Pronotum shaped and pilose as in male; length medianly 17, to anterior angle 18; width anteriorly 18, posteriorly 23. Scutellum nearly 1.5 times as wide as long (17:12). Specimen studied from Huachuca Mts., Arizona. Also recorded from Mexico, Columbia, and Venezuela.

Melanopleurus maculicorium Maldonado-Capriles, new species

Male—Habitus as in fig. 19. The following parts black: head, antennae, beak, pronotum, scutellum, legs, thorax laterally, costal margin of corium to about midlength, membrane, last 2 abdominal sterna, and genital capsule. First 3 abdominal sterna orange-red, first 2 with some black medianly, third with black extending irregularly to below spiracles. Margin of membrane, spot on vertex, and margins of coxal cavities ivory or grayish. Clavus and corium, except for the black on costal margin orange or reddish. Pilosity very scarce and short above on head, pronotum, scutellum, forewings, and thorax laterally; moderately abundant and slightly longer on antennae and abdominal sterna; more abundant and conspicuous on legs; this species is the least pilose.

Head across eyes over twice as wide (20.5:9); interocular space 10.5. Shape of antennal segments as in *belfragei*; length of segments: 6:15:12:15. Bucculae short, figure 1. Beak reaching to posterior coxae; length of segments: 10:9:9:7. Pronotum: length medianly 16, to anterior angle 16; width across anterior angles 17.5, across humeral angles 30. Scutellum about 1.5 times as wide as long (16.5:11).

Genitalia as in fig. 3, 4, 17; VHP as in fig. 18.

Female—coloration as in male. Head across eyes over twice as wide as long

(21:8.5): interocular space. Antennae shaped as in male, length of segments: 6:14:12:16. Bucculae as in male. Beak reaching posterior coxa; length of segments 12:9:10:8. Pronotum: length medianly 19, to anterior angle 19; width anteriorly 19, posteriorly 34. Pilosity as in male. Length 6.5–6.7mm.

Holotype—Male, in USNM, Catalogue No. 71498; from Sección La Palma, Constanza, Prov. La Vega, July 2, 1969, 900 m., J. Maldonado-Capriles and E. J. Marcano collectors; from the endemic plant *Baccharis myrsinites* (Lam.) Pers, Compositae. Allotype, female, in USNM, same data. Paratypes: 5 in USNM, 8 in JMC, and 2 in the collection of the University of Connecticut at Storrs, same data as holotype; 3 from Río Antonzape Buen, Sec. Mata Grande, San José de las Matas, Prov. Santiago, April 4, 1970, E. J. Marcano collector, in JMC and Marcano's collection.

This new species differ from the others by the scarcer pilosity above on head, pronotum, scutellum, and forewings. The patch of black on the corium, details of the margins of the opening of the genital capsule, shape of the claspers, and arrangement of the VHP separate it from its closest relative, *M. tetraspilus* from Cuba, as well as the other species. Additional details are given in the key and under "Discussion".

Melanopleurus tetraspilus (Stal) 1874

Male—the following parts black: head, antennae, beak, pronotum, scutellum, legs, thorax laterally, membrane, last 2 abdominal sterna, most of antepenultimate sternum, round or oval spot on clavus, and larger spot on corium extending from M to costal margin. The following parts red: first 3 abdominal sterna, anterior and lateral margin to level of spiracles of antepenultimate sternum, and clavus and corium except for the above mentioned black spots. Margin of membrane, small spot on vertex, margins of coxal cavities and bucculae ivory or grayish. Pilosity very short and scarce on head, pronotum, scutellum, and thorax laterally. More conspicuous and longer on abdominal sterna, legs, antennae, and genital capsule.

Head on lateral aspect similar to *maculicorium* n. sp.; head across eyes 18, length 10, interocular space 10. Antennal segments: 5:14:?:?. Beak reaching metacoxae; length of segments: 11:10:10:6. Bucculae short, margin evenly rounded, slightly narrower than thickness of first antennal segment. Pronotum: length medianly 16, to anterior angles 17; width across shoulders 16, across humeral angles 28. Scutellum about 1.5 times as wide as long (14:10). Length 5.5–5.6 mm.

Genitalia as in fig. 14 and 28; VHP as in fig. 29. Specimen studied from Guantanamo, Cuba.

DISCUSSION

Melanopleurus can be distinguished from allied genera as follows: head black with a calloused round spot at base of vertex; pronotum black, with or without red humeral angles, and margins always black; osteolar peritreme inverted J-shaped and black; first 3 or 4 abdominal

sterna totally or mostly red or orange-red; legs, last abdominal segment, and genital capsule black; claspers flat, L-shaped, and inserted laterad.

The species and subspecies of *Melanopleurus* fall in 3 groups of 2 forms each. Only 2 species have black areas on the hemielytra, namely, *M. tetraspilus* and the new species *M. maculicorium*. That these 2 species are related is also indicated by the similarities of their claspers, VHP, and bucculae that in turn are slightly different from those of the next 2 groups. *Melanopleurus belfragei* and *M. bicolor* are the largest species, over 8 mm, and the closer similarity of their VHP, shape of claspers, and different bucculae, as compared with those of the other species, point to their close relationship. *Melanopleurus b. bistriangularis* and *M. b. marginellus* are subspecies or just color forms as indicated by their almost identical bucculae, opening of the genital capsules, VHP, and claspers.

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